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ON THE STATUS OF BREWSTER'S WARBLER (*HELMINTHOPHILA LEUCOBONCHIALIS*).¹

BY CHARLES W. TOWNSEND, M. D.

DR. LOUIS B. BISHOP, in a paper read at the twenty-second Congress of the American Ornithologists' Union, reached the conclusion by means of an admirable series of specimens, that while Lawrence's Warbler (*Helminthophila lawrencei*) is a hybrid between the Golden-winged Warbler (*H. chrysoptera*) and the Blue-winged Warbler (*H. pinus*), Brewster's Warbler (*H. leucobonchialis*), on the other hand "is merely a leucochroic phase of *H. pinus*."²

In observing the Brewster's Warbler in the Arnold Arboretum at Boston, reported by Miss Granger in these pages,³ I was impressed by two things. In the first place the bird had the Golden-wing patches possessed by *chrysoptera* and not by *pinus*, and secondly the bird sang exactly like *chrysoptera* and not like *pinus*. These facts are certainly suggestive of a relationship between Brewster's Warbler and the Golden-winged Warbler.

Three specimens that have come under my observation are worth describing in this connection:

No. 1. A female warbler, No. 1258 in my collection, in worn plumage taken by me at Ipswich on July 17, 1907. At first sight the throat of this specimen appears to be white, but on closer scrutiny the throat, breast, and sides of the abdomen are seen to be slightly gray, and to contrast faintly with the white center of the abdomen and sides of the neck. The cheek patches are dark gray. On each wing are two narrow wing-bars, pale yellow in color. In the median line of the breast are three new, partly grown yellow feathers. This bird was feeding a young with a black throat, Col. C. W. T. No. 1259, a normal young male Golden-winged Warbler.

No. 2. A specimen kindly lent me by Mr. Wm. Brewster from

¹ Read at a Meeting of the Nuttall Ornithological Club at Cambridge, December 2, 1907.

² Auk, Vol. XXII, 1905, p. 24.

³ Auk, Vol. XXIV, 1907, p. 343.

his collection, No. 48753, a female taken at West Point, N. Y., on May 26, 1901. This bird shows a clear white throat, a suspicion of a black line before and behind the eye, and faint grayish cheek patches. The wing patch is partially divided into two and yellow in color.

No. 3. A specimen kindly lent by Dr. J. A. Allen from the American Museum of Natural History, where I had noticed it in looking over the collection. This is a female, No. 54385, from Greenville County, South Carolina, with the plumage of a typical female Golden-winged Warbler, except that the left half of the throat is pure white. The right-half, the border line of which is clean cut and in the mid-line, is dark gray. The lower part of the throat on both sides is also gray, so that there is a right angle triangle in the throat that is white instead of dark gray. The cheek and wing patches are as in the normal female Golden-winged Warbler.

The first of these specimens might be dismissed as a much worn and faded female Golden-winged Warbler, except that the yellow breast feathers suggest Blue-winged blood, and the third as a case of partial albinism in an otherwise normal Golden-winged Warbler, but the second could not be so summarily disposed of. It is plainly a Brewster's Warbler, but the grayish ear patches are significant of Golden-winged blood. Taking all three specimens together it seems to me logical to conclude that we have here indications of links between the Golden-winged and Brewster's Warblers, a conclusion directly opposed to that of Dr. Bishop who found relationship between Brewster's and the Blue-winged Warblers only. If we had these specimens only, and pure white-throated Brewster's Warblers, we might conclude that the latter Warbler was merely a phase of the Golden-winged, but, as Bishop has shown, there are all degrees from a slight tinge of yellow on the breast of these otherwise white-throated specimens up to the complete yellow-throated Blue-winged Warbler.

Two explanations of the status of Brewster's Warbler would seem possible, both of which are worth discussion:

- (1) That Brewster's Warbler is a hybrid between the Golden-winged and the Blue-winged Warblers.
- (2) That Brewster's Warbler is a phase of the Golden-Winged

Warbler, between which and the Blue-winged Warbler there is a complete series of intergrades.

(1) Although it has been objected that it would be impossible to obtain a white-throated bird (*leucobronchialis*) from the interbreeding of a black-throated (*chrysoptera*) and a yellow-throated bird (*pinus*), yet I believe this is not the case, for in hybridization secondary or less dominant characteristics may become latent.

(2) The black throat of the Golden-winged Warbler is evidently a secondary or late development, at first confined to the male. The lesser development in the female, or its almost complete absence as in specimen *No. 1* would point in this direction, as female birds are as a rule more ancestral or generalized in their type. Specimen *No. 2*, although still retaining the ear patches very faintly, shows a more complete reversion to the ancestral type, although the suspicion of a black ocular line may be taken to mean Blue-winged blood. An ocular line seems to be, however, a more primitive decoration than the broader cheek patch of the Golden-winged Warbler. Specimen *No. 3* looked at from this point of view shows a slight tendency to reversion, as half of the throat has remained white.

In the Redstart (*Setophaga ruticilla*) the very striking jet black throat is attained by the male only, and that too not till the beginning of the second year. The female and the young male both have the simpler and more primitive light colored throat. If we could go back into the family history of this species, we should doubtless find an ancestor where the male, instead of sporting the brilliant flame and jet of the present bird, lived all his life a comparatively dull colored bird devoid of the black throat. It is conceivable, although it can not be proved, that even at the present day some male Redstarts live all their lives in the undeveloped or ancestral white-throated stage. To make the analogy with specimen *No. 3* still closer, it has only to be pointed out that young male Redstarts sometimes show patches of the black on one side only, before they attain their full development. A yearling male Redstart in my collection (*No. 638*) taken at Stoneham, Mass., on May 30, 1884, has a black patch three quarters of an inch long and one eighth to one fourth inch wide, confined to the left side of the breast. On the right side a suspicion of black is shown

by one or two feathers only. This, therefore, is comparable to the condition in specimen *No. 3* which shows black on one side only of the throat.

In the Golden-winged Warbler the early white-throated stage has, on this theory, been skipped in the normal bird, for the young have the dark throats of their parents. Brewster's Warbler with its white throat would then be an instance where the hypothetical ancestral stage has not been skipped. It is possible that some of these white-throated birds, if allowed to live, might ultimately develop black throats.

I wish here to express my indebtedness to Dr. Walter Faxon for assistance in the elaboration of this paper, and I would draw the following conclusions:

That Brewster's Warbler is *not* a leucochroic phase of the Blue-winged Warbler, but that it is either (1) a hybrid between the Golden-winged and the Blue-winged Warblers, or (2) that, in the white-throated form, it is a phase, ancestral in character, of the Golden-winged Warbler, and that there is a complete series of intergrades between this and the Blue-winged Warbler.

BIRD RECORDS FROM GREAT SLAVE LAKE REGION.

A PRELIMINARY LIST OF BIRDS OBSERVED BY MY 1907 EXPEDITION
INTO THE ARCTIC BARREN-GROUNDS OF CANADA.¹

BY ERNEST THOMPSON SETON.

COMMON LOON. *Gavia imber*. Common throughout the whole region from Fort Resolution to Back's River. Especially so on all the northern lakes. This and all the Loons stay until frost drives them out in October.

YELLOW-BILLED LOON. *Gavia adamsii*. Common and generally diffused from Fort Resolution to Alymer Lake. Its caterwauls and yodels are much like those of the Common Loon.

PACIFIC LOON. *Gavia pacifica*. Pacific or White-headed Loon. Common everywhere from Fort Resolution to Aylmer Lake, but most abundant on Great Slave Lake.

¹ For the identification of many species, chiefly the Gulls, I am indebted to Mr. E. A. Preble.